



## State of New Jersey

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### HEARING OFFICER'S REPORT

TO: Fred Sickels, Director  
Division of Water Supply

FROM: Joseph A. Miri, Ph.D.  
Hearing Officer

IN THE MATTER OF: Water Allocation Permit Application No. 5240 Lower Twp. MUA

In compliance with the provisions of the Water Supply Management Act, N.J.S.A. 58:1A-1 et seq., the Lower Township Municipal Utilities Authority LTMUA), 2900 Bayshore Road, Villas, New Jersey 08251, filed an application on June 14, 2011 with a revision on April 20, 2012, for approval of plans to divert 143 million gallons per month (mgm) not to exceed 1330 million gallons per year (mgy) at a maximum rate of 4,250 gallons per minute (gpm) from five existing Well Nos. 1, 2, 6, 7, and 9; 262, 247, 280, 306, and 280 feet deep respectively, and one new Well No. 8, 269 feet deep. All wells are screened in the Cohansey aquifer. This request represents an increase of 50 mgm and 462 mgy above the existing overall allocation of 93 mgm and 868 mgy, an increase in the overall pumping rate from 3,000 gpm to 4,250 gpm, and the addition of one new source. The maximum pumping rate for Well 7 is proposed to be increased from 600 gpm to 800 gpm, the maximum pumping rate for Well 9 is proposed to be increased from 500 gpm to 600 gpm, the maximum diversion rate for Well 1 is proposed to be decreased from 850 gpm to 800 gpm, and the maximum diversion rate for the new Well 8 is to be established at 1,000 gpm.

### PUBLIC HEARING

A hearing was required pursuant to public comments received by the NJDEP in response to the Public Notice published on September 28, 2012 in the Press of Atlantic City. A public hearing was scheduled for October 30, 2012 at the Cape May County Administration Building in Cape May Court House, Cape May County. This hearing had to be postponed due to Superstorm Sandy. A combined public hearing for both LTMUA's application (5240) and New Jersey American Water - Cape May System application (5054) was scheduled for December 19, 2012 at 4 P.M. at the Cape May County Administration Building, 4 Moore Road, Cape May Court

House, New Jersey 08210, and published on November 19, 2012 in the Press of Atlantic City. At the end of the hearing, I held the public comment period open until January 3, 2013.

## SUMMARY OF COMMENTS

Aside from questions seeking information or clarifications, such as those concerning quantities of water reserved under the 1992 agreement, and those involving matters outside the Bureau's purview, substantive comments made at the hearing and in other communications related primarily to: 1) saltwater intrusion; 2) contamination of existing sources; 3) water demand projections; 4) water conservation; 5) voiding the 1992 agreement allowing Cape May City Water Department (CMCWD) to obtain water from the LTMUA; 6) the impact of the withdrawal on stream flow; 7) public input on the Alternative Water Supply Plan; and 8) the appropriateness of the well test conducted by the New Jersey Geological and Water Survey.

### 1) Saltwater Intrusion

Some comments were that increasing LTMUA's allocation will hasten salt intrusion and a better approach would be to develop a new regional strategy in the form of a regional Alternative Water Supply Plan (AWSP), as the Gibson Bill offered, that prevents further degradation of the resource and would be less expensive in the long run.

Regarding hastening salt intrusion, the Bureau of Water Allocation and Well Permitting's (BWAWP) response is that NJDEP recommends alternatives similar to Scenario 4 in the USGS 2009 report as an interim solution until a more sustainable solution is evaluated and implemented acknowledging that interim measures are being recommended. This is why all potentially affected permit holders in the county are being required to have enhanced water conservation, a bolstered sentinel well network and coordinated water quality monitoring, in addition to AWSP's.

Regarding a regional Alternative Water Supply Plan prepared by NJDEP, BWAWP's responses are that: 1) funding in the Gibson Bill was used to perform the evaluation and any remaining funds will be used to support future needs such as analysis to implement alternatives or conservation programs; 2) in July, 2012, NJDEP presented a draft plan for future water supply in Cape May County, which is now being finalized; 3) in doing so NJDEP utilized a USGS report, "Future Water-Supply Scenarios, Cape May County, New Jersey 2003-2005," SIR 2009-5187, solicited by NJDEP, and supplemental groundwater modeling in order to evaluate LTMUA's water allocation request and to develop a draft updated strategy for water supply in Cape May County; and 4) NJAW-CMCH, Wildwood Water Utility (WWU), LTMUA and CMCWD have committed to work to implement alternatives that will provide sustainable supplies. The Bureau's draft plan involves wells placed along the spine of the peninsula, similar to USGS Scenario 7. BWAWP indicated that 1) NJAW-CMCH has wells in the Atlantic City 800-foot sand (AC800) which are similar to the spine well scenario; 2) WWU has constructed wells in the AC800 and is in the preliminary stages of evaluating wells closer to the spine of the peninsula as well; and 3) LTMUA is in the preliminary stages of connecting to these two systems and is also connected to CMCWD.

Another comment was that the Staff Report doesn't discuss the negative impacts of increasing the LTMUA's allocation to 1,078 mgd. The Bureau answered that the requested allocation has been adjusted downward to 1,034.6 mgd and it is doubtful that the water held in the 1992 agreement will be utilized, so it's anticipated that Scenario 4 adequately predicts potential impacts. BWAWP also noted that stream flow/water table impacts are anticipated to be off-set as private wells, which currently serve the communities in Lower Township, will no longer be used when connections to the LTMUA system are completed. More specific comments were that the results of USGS' supplemental estimate of saltwater intrusion (that it will occur faster) should be included in the Staff Report and travel times to the airport and WWU's wells should be given. BWAWP responded that USGS provided NJDEP with draft results for decision making purposes but evaluations are in draft form and cannot be included in public documents at this time. The requirement to install monitoring wells as part of the LTMUA's permit is designed to gather the data needed to track the movement of the salt front towards LTMUA's potable supply wells and to validate modeling estimates. The Bureau said further that the saltwater intrusion migration distances are best estimates based on modeling of existing data and cannot be translated to exact travel times due to their non-linear nature and differences between modeled estimates and actual field measurements and observations.

A comment noted the existence of a "tongue" of salt water moving between the WWU Rio Grande Well Field and the new LTMUA Well Field at the airport and that the increase in chloride levels is not fully understood, so it should be investigated prior to granting any increased allocations. After noting that the Well Field at the airport is not new (1930's), BWAWP responded that 1) there is no new allocation at this location; 2) LTMUA is required to develop an AWSP and implement sentinel well monitoring; 3) some of these wells have been constructed between the tongue of saltwater migrating from the Delaware Bay to the WWU Rio Grande Well Field; and 4) if saltwater begins migrating toward the LTMUA Airport Well Field, LTMUA will be required to implement their AWSP and to reduce their pumpage from the affected area accordingly.

A commenter observed that final implementation of the AWSP shall be within five years of exceedance of the chloride benchmarks provided in the monitoring program. It was noted that this doesn't recognize that saltwater can occur rather swiftly and the AWSP may not be ready, should salt water contamination of LTMUA wells occur. BWAWP responded that: 1) LTMUA has proactively begun implementing the monitoring plan and the AWSP has been drafted; 2) seven new sentinel wells have been installed and the initial round of samples has been obtained; 3) results of sampling performed by WWU and LTMUA provide a very good estimation of the geometry of the salt front; 4) LTMUA intends to begin construction of an interconnection with WWU and update its interconnection agreement with CMCWD; and 5) the monitoring trigger values were conservatively set to provide for necessary reaction time.

## 2) Contamination of Existing Sources

A number of comments were received expressing concern for Town Bank and Villas residents regarding the public health and water quality issues raised regarding their private wells.

BWAWP responded that the demonstrated need of the increased allocation is the primary rationale for the Department's recommendation of additional allocation.

### 3) Water Demand Projections

A comment was made that there is a wide discrepancy in the population currently served by the LTMUA, what it proposes to serve through the increased water allocation, and the total population of Lower Township, therefore LTMUA's water demand projections should be re-evaluated. BWAWP responded that it has worked closely with the applicant to determine the summer and winter populations and a yearly average in order to accurately calculate demand numbers.

Another comment was that there has been an increase in new service connections to LTMUA since the USGS model was constructed, thereby understating build-out demands. The Bureau responded that WWU's current Cohansey demand is significantly less than cited in the comment. In 2008, WWU significantly reduced its Cohansey pumpage and increased pumpage from the deeper confined aquifers in accordance with USGS Scenario 4. LTMUA has experienced some increase in Cohansey demands over the past 10 years but domestic usage of the Estuarine sand is projected to decline as Lower Township residents discontinue use of their wells and connect to LTMUA. Due to these shifts in demands, USGS prepared draft supplemental model runs cited in the Staff Report.

### 4) Water Conservation

A comment was made that the demand projections on which the requested increase in allocation was based did not consider any water conservation measures, even though LTMUA presently has a water conservation ordinance that could have been used to estimate potential water savings. Therefore, it is recommended that 1) a Level 3 Water Supply Emergency be declared; 2) the demand projections factor in the water savings to determine if the allocation increase is warranted; and 3) the permit be modified to include a condition that a further reduction in demand may occur upon a schedule included in the countywide water conservation plan that would be developed by the NJDEP pursuant to the Gibson Bill. In response, BWAWP noted 1) that only the Governor can declare a Level 3 Water Supply Emergency; 2) Mandated conservation measures are beyond the authority of the Bureau, however it does have authority to require submittal of Drought Management and Water Conservation Plans; and 3) NJDEP is working with Cape County Purveyors to develop comprehensive conservation plans and providing marketing, outreach and education.

### 5) Voiding the 1992 Agreement

It was commented that the 1992 agreement was never implemented because instead of LTMUA providing water to Cape May City and its neighboring municipalities, Cape May City constructed a desalination plant in 1998. A further comment was that if Cape May requests that the contract be honored, the LTMUA could theoretically be required to convey a significant amount of water to Cape May's distribution system. This comment led to the recommendation that NJDEP should void the agreement. The response was that NJDEP met with all interested

parties in a failed attempt to facilitate re-negotiation of the contract. In addition, it was noted that this permit requires LTMUA to develop and implement an AWSP. Based on January 4, 2013 discussions with representatives of LTMUA, CMCWD, WWU, NJAW, and the DWSGS, LTMUA's AWSP will consist of connecting to WWU and reactivating an emergency interconnection agreement with CMCWD, which in turn provides a redundancy and back up supply for all purveyors involved. Finally, BWAWP pointed out that all bulk purchase agreements must receive NJDEP approval and based on present conditions, NJDEP approval of such a contract would be doubtful as Cape May City's desalination facility is a more sustainable source of supply to meet the City's needs.

#### 6) Impact on Stream Flow

There was a comment to the effect that there is a link between the LTMUA well withdrawals from the Cohansey aquifer and reductions in streamflow and NJDEP should estimate these possible impacts. The Bureau responded initially by making five general points. First, shallow impacts are not anticipated since shallow unconfined wells that could affect streamflow are being abandoned. Second, the Cohansey aquifer in the vicinity of LTMUA is confined. Third, impacts to surface water from confined diversions are challenging to identify, quantify and measure at a precise location. Fourth, typically, these impacts cannot be quantitatively regulated. Fifth, the impacts from confined withdrawals are diffuse, cannot be attributed to one specific well or even purveyor and may take many years to manifest themselves. Likewise, BWAWP said, any effects associated with a reduction in pumpage may not be seen in a stream monitoring location, even if an appropriate location could be selected. Regardless, the Bureau said, all streams in the vicinity of this diversion are intermittent. Pursuant to N.J.A.C. 7:19-1.6(e)5, the Department is prohibited from establishing a passing flow requirement for a diversion source if the 7 day, 10 year low flow is zero (0); the stream flow is intermittent; or the size or nature of the watershed is such that a passing flow requirement is impractical.

#### 7) Appropriateness of the Aquifer Test

One comment was that there is a proposed increase in allocation for New Well No.8, a 33% increase in maximum diversion rate from existing well no. 7 and a 37% increase in maximum diversion rate from existing Well No. 9, but the aquifer test was only conducted for the New Well 8. In response, the Bureau stated that: 1) both it and the NJ Geological and Water Survey reviewed the aquifer test proposal; 2) the test provided data enabling the analysis of impacts associated with the increased demand on the resource, interconnected resources and other users; 3) supplemental modeling was also done to analyze the impacts of the requested allocation; 4) data from single well aquifer testing are much more reliable than multiple well testing results, since there are fewer variables to control; and 5) cumulative impacts can then be evaluated using ground water flow models.

#### 8) Public Input on AWSP

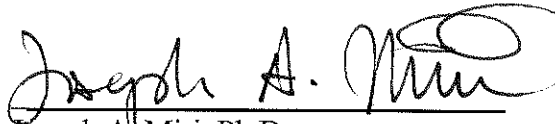
There was a comment that there is no requirement that public input be solicited on the ASWP and enhanced water conservation plan that LTMUA must prepare as a condition of the permit. BWAWP indicated in response that implementation of an AWSP with additional sources of

supply will require a major modification of the LTMUA water allocation permit and at that time the opportunity for additional public input will be available through public hearing, as provided by the State water allocation regulations.

#### FINDING

The above accurately reflects the relevant substantive issues raised in the public hearing and written correspondence received by the Department concerning this application. The final Staff Report and the Staff Report Addendum contain the Bureau's responses to these issues. A review of these issues and the Bureau's responses, including the seven amendments to the permit listed at the end of the final Staff Report, indicates that it has adequately addressed the issues and has done so in a reasonable manner.

March 28, 2013

  
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Joseph A. Miri, Ph.D.,  
Hearing Officer